

What is Claimed is:

1.           A mobile communication system comprising:  
2           a base station; and  
3           a mobile station,  
4           said mobile station receiving control  
5 information that notifies said mobile station of  
6 transmission of a packet from said base station so that  
7 said mobile station can receive the packet,  
8           wherein said base station comprises  
9           a base station transmitting/receiving section  
10 which transmits/receives the packet to/from said mobile  
11 station, and  
12           a base station state updating section which  
13 notifies said mobile station of transmission/reception  
14 state update information that indicates update of a  
15 packet receivable state in said mobile station, and  
16           said mobile station comprises  
17           a mobile station transmitting/receiving  
18 section which transmits/receives the packet to/from said  
19 base station, and  
20           a mobile station state updating section which  
21 sets, on the basis of the transmission/reception state  
22 update information, one of an active state in which the  
23 control information for packet transmission can be  
24 received and a suspend state in which the control  
25 information for packet transmission cannot be received.

2.           A system according to claim 1, wherein when  
2   said mobile station state updating section receives a  
3   change instruction to the active state, said mobile  
4   station transmitting/receiving section starts at least  
5   one of standby for the packet and transmission/reception  
6   of dedicated physical channel data to be transmitted by  
7   a dedicated physical channel.

3.           A system according to claim 2, wherein when  
2   said mobile station state updating section receives a  
3   change instruction to the suspend state, said mobile  
4   station transmitting/receiving section stops at least  
5   one of transmission of the dedicated physical channel  
6   data and reception of the dedicated physical channel  
7   data.

4.           A system according to claim 1, wherein when  
2   said base station is in the suspend state, said base  
3   station transmitting/receiving section stops at least  
4   one of transmission of dedicated physical channel data  
5   and reception of the dedicated physical channel data.

5.           A system according to claim 1, wherein said  
2   mobile station state updating section sets the active  
3   state when the transmission/reception state update  
4   information cannot be normally received.

6.           A system according to claim 1, wherein said  
2 mobile station further comprises a packet control signal  
3 generation section which, when a change instruction to  
4 the active state is normally received, transmits to said  
5 base station a notification reception confirmation  
6 signal that represents notification confirmation  
7 information of the packet of the change instruction.

7.           A system according to claim 6, wherein said  
2 packet control signal generation section uses a control  
3 signal as the notification reception confirmation  
4 signal.

8.           A system according to claim 6, wherein said  
2 packet control signal generation section uses a channel  
3 quality indication representing a reception quality of a  
4 downlink channel as the notification reception  
5 confirmation signal.

9.           A system according to claim 6, wherein said  
2 mobile station further comprises a reception quality  
3 control section which measures a reception quality.

10.          A system according to claim 6, wherein said  
2 base station further comprises a packet transmission  
3 control section which stops transmitting the packet to

4 said mobile station when no notification reception  
5 confirmation signal is received.

11. A system according to claim 10, wherein  
2 said packet transmission control section  
3 transmits a channel quality indication immediately  
4 before receiving the transmission/reception state update  
5 information, and  
6 said base station state updating section  
7 further comprises a priority determination section which  
8 decides the transmission/reception state update  
9 information on the basis of a packet transmission  
10 priority that is estimated on the basis of the channel  
11 quality indication.

12. A system according to claim 11, wherein said  
2 priority determination section decides the  
3 transmission/reception state update information on the  
4 basis of a reliability of the channel quality  
5 indication.

13. A system according to claim 1, wherein in the  
2 active state, said mobile station state updating section  
3 monitors the control information for packet  
4 transmission/reception.

14. A system according to claim 1, wherein said

2 mobile station state updating section notifies said  
3 mobile station of the transmission/reception state  
4 update information at a predetermined timing set in  
5 advance.

15.           A system according to claim 1, wherein said  
2 mobile station further comprises  
3               a user data separation section which separates  
4 a reception signal into user information and the control  
5 information,  
6               a packet reception determination section which  
7 determines on the basis of the control information  
8 whether the packet is normally received, and  
9               a signal synthesizing section which  
10 synthesizes an input signal.

16.           A system according to claim 1, wherein said  
2 mobile station further comprises a mobile station ID  
3 determination section which detects information of a  
4 mobile station ID contained in an HS-SCCH and determines  
5 whether the mobile station ID coincides with a reception  
6 mobile station ID of said mobile station that has  
7 received the HS-SCCH.

17.           A system according to claim 1, wherein said  
2 base station further comprises  
3               a user data separation section which separates

4 a reception signal into user information and the control  
5 information,  
6 a signal synthesizing section which  
7 synthesizes an input signal,  
8 a buffer which temporarily stores the user  
9 information, and  
10 a scheduling/transmission mode deciding  
11 section which decides scheduling and a transmission mode  
12 on the basis of a channel quality indication.

18. A system according to claim 17, further  
2 comprising a CRC determination section which determines  
3 a CRC added to the user information.

19. A mobile communication system comprising:  
2 a base station; and  
3 a mobile station,  
4 first data being transmitted from said base  
5 station to said mobile station using a first channel,  
6 wherein said base station comprises  
7 a base station state updating section which  
8 notifies said mobile station of transmission/reception  
9 state update information that indicates update of a  
10 first data receivable state in said mobile station, and  
11 a base station transmitting/receiving section  
12 which transmits/receives second data transmitted by a  
13 second channel, in accordance with a transmission timing

14 of the transmission/reception state update information,  
15 and  
16               said mobile station comprises  
17               a mobile station state updating section which  
18 sets, on the basis of the transmission/reception state  
19 update information, one of an active state in which  
20 control information for transmission of the first data  
21 can be received and a suspend state in which the control  
22 information for transmission of the first data cannot be  
23 received, and  
24               a mobile station transmitting/receiving  
25 section which transmits/receives the second data  
26 transmitted by the second channel, in accordance with  
27 the transmission timing of the transmission/reception  
28 state update information.

20.           A system according to claim 19, wherein said  
2 base station transmitting/receiving section and said  
3 mobile station transmitting/receiving section transmit  
4 the second data in accordance with the transmission  
5 timing of the next transmission/reception state update  
6 information after generation of the second data.

21.           A system according to claim 19, wherein  
2               said base station transmitting/receiving  
3 section and said mobile station transmitting/receiving  
4 section transmit the second data by using the second

5 channel together with a third channel that transmits the  
6 control information,  
7           said mobile station further comprises a DL  
8 data determination section which determines  
9 presence/absence of transmission of the second data by  
10 using the control information transmitted by the third  
11 channel, and  
12           said base station further comprises a UL data  
13 determination section which determines presence/absence  
14 of transmission of the second data by using the control  
15 information transmitted by the third channel.

22.           A system according to claim 21, wherein said  
2 DL data determination section and said UL data  
3 determination section use a transport format combination  
4 indication representing a structure of the second  
5 channel as the information used to determine the  
6 presence/absence of transmission of the second data.

23.           A system according to claim 21, wherein  
2           said base station transmitting/receiving  
3 section and said mobile station transmitting/receiving  
4 section transmit the second data by using the second  
5 channel together with the third channel that transmits  
6 the control information, and  
7           said base station further comprises a UL data  
8 presence/absence determination section which determines



9 presence/absence of transmission of the second data by  
10 using a power ratio of the third channel to the second  
11 channel.

24. A system according to claim 19, wherein when  
2 the second data to be transmitted at the transmission  
3 timing of the second data is not present, said mobile  
4 station transmitting/receiving section stops  
5 transmitting at least one of the third channel and the  
6 second channel at a predetermined timing.

25. A system according to claim 19, wherein  
2 said base station transmitting/receiving  
3 section and said mobile station transmitting/receiving  
4 section transmit the second data by using the second  
5 channel together with a third channel that transmits the  
6 control information,  
7 when the second data to be transmitted is not  
8 present, said mobile station transmitting/receiving  
9 section stops transmitting at least one of the third  
10 channel and the second channel at a predetermined  
11 timing, and  
12 said base station further comprises a CQI  
13 error detection section which determines  
14 presence/absence of transmission of the second data by  
15 using an error detection result of at least one of the  
16 third channel and the second channel.

26.           A system according to claim 19, wherein when  
2 it is determined that transmission of the second data is  
3 not present at the predetermined transmission timing of  
4 the transmission/reception state update information,  
5 said base station transmitting/receiving section and  
6 said mobile station transmitting/receiving section stop  
7 receiving at least one of the second channel and the  
8 third channel at a predetermined timing.

27.           A system according to claim 21, wherein each  
2 of said base station transmitting/receiving section and  
3 said mobile station transmitting/receiving section  
4 further comprises a transmitting/receiving section  
5 which, in transmitting the second data, continues  
6 transmission/reception of the third channel in a unit  
7 frame in which the second data has been transmitted even  
8 after an end of transmission of the second data.

28.           A mobile station comprising:  
2               a mobile station receiving section which  
3 receives control information that notifies said mobile  
4 station of transmission of a packet from a base station  
5 so that said mobile station can receive the packet; and  
6               a state update deciding section which sets one  
7 of an active state in which the control information for  
8 packet transmission can be received and a suspend state

9 in which the control information for packet transmission  
10 cannot be received, in accordance with a  
11 transmission/reception state update information that is  
12 transmitted from the base station and indicates update  
13 of a packet receivable state.

29. A mobile station which receives first data  
2 from a base station by a first channel, comprising:  
3 a receiving section which receives  
4 transmission/reception state update information that is  
5 transmitted from the base station and indicates update  
6 of a first data receivable state;  
7 a mobile station state updating section which  
8 sets, on the basis of the transmission/reception state  
9 update information, one of an active state in which the  
10 control information for transmission of the first data  
11 can be received and a suspend state in which the control  
12 information for transmission of the first data cannot be  
13 received; and  
14 a transmitting section which transmits second  
15 data transmitted by a second channel, in accordance with  
16 a transmission timing of the transmission/reception  
17 state update information.

30. A base station comprising:  
2 a transmitting section which transmits control  
3 information that notifies a mobile station of

4 transmission of a packet so that the mobile station can  
5 receive the packet; and  
6 a base station state updating section which  
7 notifies the mobile station of transmission/reception  
8 state update information that indicates update of a  
9 packet receivable state in the mobile station,  
10 wherein the transmission/reception state  
11 update information is information which sets the mobile  
12 station in one of an active state in which the control  
13 information for packet transmission can be received and  
14 a suspend state in which the control information for  
15 packet transmission cannot be received.

31. A base station which transmits first data to a  
2 mobile station by using a first channel, comprising:  
3 a base station state updating section which  
4 notifies the mobile station of transmission/reception  
5 state update information that indicates update of a  
6 first data receivable state in the mobile station, the  
7 transmission/reception state update information being  
8 information which sets one of an active state in which  
9 the mobile station can receive control information for  
10 transmission of the first data and a suspend state in  
11 which the mobile station cannot receive the control  
12 information for transmission of the first data; and  
13 a transmitting section which transmits second  
14 data transmitted by a second channel, in accordance with

15 a transmission timing of the transmission/reception  
16 state update information.

32. A packet communication method for a mobile  
2 communication system, comprising the steps of:  
3 causing a base station to notify a mobile  
4 station of transmission/reception state update  
5 information that indicates update of a packet receivable  
6 state in the mobile station;  
7 causing the mobile station to receive control  
8 information that notifies the mobile station of packet  
9 transmission from the base station;  
10 causing the mobile station to set, on the  
11 basis of the transmission/reception state update  
12 information, one of an active state in which the control  
13 information for packet transmission can be received and  
14 a suspend state in which the control information for  
15 packet transmission cannot be received; and  
16 causing the mobile station to receive a  
17 packet.

33. A packet communication method for a mobile  
2 communication system in which first data is transmitted  
3 from a base station to a mobile station by a first  
4 channel, comprising the steps of:  
5 causing the base station to notify the mobile  
6 station of transmission/reception state update

7 information that indicates update of a first data  
8 receivable state in the mobile station;  
9 causing the base station and the mobile  
10 station to transmit second data transmitted by a second  
11 channel in accordance with a transmission timing of the  
12 transmission/reception state update information; and  
13 causing the mobile station to set, on the  
14 basis of the transmission/reception state update  
15 information, one of an active state in which control  
16 information for transmission of the first data can be  
17 received and a suspend state in which the control  
18 information for transmission of the first data cannot be  
19 received.